A STUDY OF THE QUALIFICATIONS AND STATUS OF 190 INDUSTRIAL ARTS TEACHERS IN THE ELEMENTARY, JUNIOR HIGH, AND SENIOR HIGH SCHOOLS OF TEXAS

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INDUSTRIAL ARTS TEACHERS IN THE ELEMENTARY,
JUNIOR HIGH, AND SENIOR HIGH SCHOOLS
OF TEXAS

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CHAPTER I

INTRODUCTION

Many studies have been made throughout Texas involving the various phases of industrial arts, but it was found that no complete study has been made concerning the prevailing qualifications and status of industrial arts teachers. This being evident, it was believed that a study of the qualifications and general status of the industrial arts teachers in the elementary, junior high, and senior high schools of Texas would be of value.

This study, culminating in determining the status of the industrial arts teachers of Texas, with respect to qualifications, should be of value to the industrial arts teacher in service as a means of comparing himself with the average over the state, to the school administrator for use in the selection of industrial arts teachers, and to those state institutions directly concerned with the preparation of teachers.

Statement of the Problem

This is a study of the qualifications and status of industrial arts teachers in the elementary, junior and senior high schools in the State of Texas.
Purpose of the Study

The purpose of this study is threefold: First, to review literature concerning the qualifications of industrial arts teachers as evidenced by research studies, and the opinions of leaders in education and industrial arts education; second, to gather data concerning the qualifications and status of industrial arts teachers actually teaching in the State of Texas; and third, to treat the data in order to determine the qualifications and status of the industrial arts teachers in Texas, and to compare these qualifications with present certification regulations and with qualifications recommended by leaders in the field of industrial arts teachers.

Limitations of the Study

The study was limited to the study of the qualifications and status of industrial education and industrial arts education teachers in 190 accredited elementary, junior high, and senior high schools broadly scattered over the State of Texas. Of 380 questionnaires sent to industrial arts teachers, only 190 out of the number returned were complete and usable; therefore, part of the study is limited to the information and data provided by the 190 questionnaires.

The study was further limited to a study of industrial arts teachers employed in accredited elementary, junior high, and senior high schools of Texas during the 1952-1953 school year and does not concern vocational teachers.
Sources of Data

Data for the study were secured from several sources: First, from professional literature in the field of industrial arts; second, through the use of a questionnaire directed to the teachers of industrial arts in the State of Texas; and third, through personal interviews with teachers and administrators associated with industrial arts.

Method of Procedure

This study was organized as follows: Chapter I includes an introduction to the study, statement of the problem, purpose of the study, limitations of the problem, sources of data, method of procedure, definition of terms, and a summary of recent and related studies.

Regulations concerning the qualifications of industrial arts teachers in the State of Texas as set forth by the Texas Education Agency are presented in Chapter II. These regulations are compared later with the qualifications of the 190 industrial arts teachers and with the qualifications recommended by leaders in the field of industrial arts.

The data covering the qualifications of industrial arts teachers as recommended by outstanding leaders in the field of education are treated and presented in Chapter III.

In Chapter IV, data concerning the current qualifications and status of industrial arts teachers obtained from questionnaires which were distributed to the teachers throughout
the State of Texas are discussed, and a profile of the average industrial arts teacher of Texas, with regard to qualifications and status, is established.

A comparison of the current qualifications of industrial arts teachers with existing qualification regulations as determined by the Texas Education Agency and the qualifications as recommended by leaders in the field of industrial arts and teacher education was made. This comparison was presented in Chapter V.

In Chapter VI a summary of the study was presented, and conclusions and recommendations were formulated and presented.

Definition of Terms

The following terms have been used in this study and are defined as follows:

"Industrial arts" includes "those phases of general education which deal with industry--its organization, materials, occupations, processes, and products--and with the problems resulting from the industrial and technological nature of society." The terms "industrial arts education" and "industrial education" are used both synonymously and interchangeably throughout the study.

1 Gordon O. Wilber, Industrial Arts in General Education, p. 2.
"Qualifications" as used in this study pertains to the amount of professional training, teaching experience, and trade experience of the industrial arts teachers.

"Status" refers to the existing condition of the industrial arts teacher in regard to teaching qualifications, salary, experience, tenure, and age.

"Professional preparation" refers to "the total formal preparation for teaching that a person has completed in a teacher education institution" or "the aggregate of his experience in positions involving educational activities."^2

"Trade experience" as used in this study denotes the experiences obtained by the teacher of industrial arts when employed as a skilled worker in one or more of the following trades: carpenter, mechanic, draftsman, painter, salesman, leathercraft worker, blacksmith, concrete worker, and plumber.

"Semester hour," as applied in this study, signifies a unit for expressing quantitatively the amount of academic credit received for completing a course at college or university level.

The term "present teachers" as used in this study refers to those teachers who were teaching industrial arts in the public schools of Texas during the 1952-1953 school year, and who returned questionnaires concerning their qualifications which were used in this study.

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Recent and Related Studies

Several studies have been made concerning the qualifications and status of industrial arts teachers in various states throughout the United States. No study was found, however, which included the qualifications and status of the industrial arts teachers in Texas.

In 1940 a study was made by A. H. Jefferies concerning the status of the industrial arts teachers in the high schools of Kansas. Jefferies' study included 195 industrial arts teachers in the high schools of Kansas. The purpose of the study was to determine and present the exact status of the teacher of industrial arts in the various high schools of Kansas as determined by professional experience, by trade experience, and by in-service training.

The study made by Jefferies showed some of the conditions found in the teaching field of industrial arts in Kansas in 1940. He also found that there was a trend in the qualifications of the industrial arts teachers, throughout Kansas, away from trade experience to the acquisition of more professional education.

At Columbia University, New York City, in 1927, a study was made by Fred Strickler concerning the qualifications of

industrial arts teachers over the United States. Strickler's study included 480 industrial arts teachers throughout the United States. The study made by Strickler had three main purposes: First, to discover some of the more theoretical non-technical elements and phases which have been a part of industrial arts teacher-training; second, to determine the professional and trade experience of teachers now in the field; and third, to tabulate the findings and present them in a clear and interesting manner, in order to show the general attainments of the instructors. The results of these purposes, in part, are presented in Chapter III of this study.

On the basis of data covering 500 teacher educators listed in the American Council of Industrial Arts Teacher Education files, a composite profile of the industrial arts teacher-educator was formulated. These data were compiled by James I. Paige as a part of the requirements for a master's thesis presented at the University of Florida in 1951. The composite profile reads, in part, as follows:

He [the industrial arts teacher educator] was born in New York State in 1908 and is forty-two years of age. He is married, has two children, and is the holder of a Master of Arts degree. He has taught over seven

years in the public schools and approximately ten years in institutions of higher learning. He has contributed very little along the lines of published materials. . . 5

This quotation gives in part the profile of 500 teacher educators throughout the United States, and indicates that small families are prevalent among the teacher educators. The Master of Arts Degree was also found to be eminently prevalent among the degrees held by the teacher educators; this profile closely resembles the profile of the average industrial arts teacher in Texas which is presented in Chapter IV of this study.

In a study concerning the growth of industrial arts in Texas, completed in 1948, Wayne Matthews ascertained some of the existing qualifications of industrial arts teachers at that time. Matthews secured data from the superintendents' annual reports filed with the Texas State Department of Education for the 1947-1948 school year. According to the data presented by Matthews, 65 per cent of the teachers of industrial arts were teaching with a bachelor's degree; 16 per cent were teaching with a master's degree; and 19 per cent were teaching without a degree. Matthews also found that 34 per cent of the teachers had five years of teaching experience.

or less; 16 per cent of the teachers had teaching experience that ranged from six to ten years; 11 per cent had teaching experience that ranged from eleven to fifteen years; and 30 per cent had teaching experience of sixteen years or more.

In 1952, Sam Ottinger made a study of the industrial arts program in the Negro high schools of Texas. Ottinger's study was concerned with forty-three Negro high schools of Texas which included industrial arts in their curricula. Two of the purposes of the study were to determine the amount of preparation and the qualifications of the Negro industrial arts teachers in the State of Texas. Ottinger found that only two instructors in industrial arts in the Negro high schools of the study had not completed a four-year college course; a significant percentage of the teachers of industrial arts in the Negro high schools held the master's degree; the majority of the instructors met minimum qualifications for certification; and the majority of the industrial arts instructors had less than ten years of experience in teaching.

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CHAPTER II

THE QUALIFICATIONS OF INDUSTRIAL ARTS TEACHERS
AS PRESCRIBED BY PRESENT CERTIFICATION LAWS
IN THE STATE OF TEXAS

This chapter presents information concerning the qualifications recommended and prescribed for the certification of industrial arts teachers in the junior and senior high schools of Texas. These recommended qualifications are used later to compare the extent to which the recommended qualifications are in agreement with the qualifications recommended by recognized leaders in the field of industrial arts.

In order to obtain information concerning the current recommended qualifications of industrial arts teachers in the State of Texas, a letter was sent to the Texas Education Agency. In reply to the letter, the Texas Education Agency stated that the recommended qualifications for industrial arts teachers were set forth in Bulletin Number 389, published in 1938 under the supervision of the Texas State Department of Education.

1 Texas State Department of Education, Industrial Arts Program in Junior and Senior High Schools of Texas, Bulletin No. 389, 1938, p. 124.
A study of these qualifications for industrial arts teachers as prescribed formerly by the Texas State Department of Education and currently prescribed by the Texas Education Agency revealed that the qualifications were divided into two groups, namely, general and specific. These qualifications are presented and discussed under these two general headings.

General Qualifications of Industrial Arts Teachers

The first general qualification of industrial arts teachers set forth by the Texas Education Agency states that the teacher shall have "the ability to work with and serve as a leader of boys." This qualification has been interpreted to mean that an industrial arts teacher should be able to understand and to get along with young people. He must understand how boys grow and develop in their particular situations, ideas, and problems. He must be able to see their points of view and have the leadership qualities necessary to guide their work and play.

The second general qualification of industrial arts teachers as prescribed by the current bulletin pertaining to industrial arts is stated as follows:

A bachelor's degree with sufficient preparation in industrial arts education, including laboratory practice and theory in the activity he is to teach...
This has been interpreted to mean that an industrial arts teacher's qualifications should meet such requirements as are necessary to obtain a bachelor's degree from a regular four-year college or university. Included in the requirements for the bachelor's degree should be sufficient preparation in the field of industrial arts to prepare the industrial arts teacher to teach effectively in the field. This preparatory work should include the basic fundamentals and theory necessary to serve as a foundation for the effective teaching of industrial arts. Work in actual laboratory situations and practical applications involving work in several phases of industrial arts such as woodwork, metal work, general crafts, drawing, design, printing, and auto mechanics should be a part of the teacher's preparation. Specific requirements in terms of semester hours in each of the various phases are presented later in the chapter.

"A wide knowledge of industrial life," is listed as the third general qualification for an industrial arts teacher. This general qualification implies that the preparation of an industrial arts teacher should include a working knowledge of the processes of industry and industrial problems. The industrial arts program in some schools would probably be more successful if it was representative of the tools, material, processes, and problems common to the industry of the...
locality; this would, perhaps, require the industrial arts teacher to have a greater amount of specific knowledge concerning certain phases of industry. A wide knowledge of industry probably implies that a true industrial arts program should include a greater number of the many phases of industry; this was also emphasized by Ericson when he stated, "Aims best served through a variety of experience with tools and materials representing many industries." Ericson's statement indicates that a varied or wide knowledge of industry would be of value to the industrial arts teacher.

The fourth general qualification set forth by Bulletin 389 pertaining to industrial arts teachers is as follows:

A broad educational background adequate for the successful presentation of instructional materials for the various activities, and for successful participation in the general school program.

The foregoing statement implies that the educational preparation and interests of an industrial arts teacher should be broad and should include preparation in the many phases of industrial arts. In addition to the specific preparation needed in the field of industrial arts, there should be preparation in all of the basic phases of general education sufficient to enable him to participate and to teach effectively as a member of the instructional staff of a school program.

5 E. E. Ericson, Teaching the Industrial Arts, p. 249.

"The ability to apply his knowledge to life situations in a practical way, to construct teaching devices, and to apply the fundamentals of psychology and pedagogy," is the fifth general qualification specified for an industrial arts teacher. This qualification emphasizes the importance of an industrial arts teacher having the ability to make practical application of the knowledge acquired in the classroom to actual situations in real life. This general qualification actually includes a second qualification, namely, the ability to construct devices to be used to improve and aid the teaching-learning situation. A third qualification embodied within this general qualification (the ability to apply the fundamentals of psychology and pedagogy) is the application of the fundamentals of good teaching and the understanding of how the pupil actually learns.

Listed as the sixth general qualification for an industrial arts teacher is "good craftsmanship—the ability to perform well the basic skills required to be developed in the industrial arts he is to teach." This qualification is very specific and states that the industrial arts teacher must have the ability to do well the things the students are taught to do.

7 Ibid., p. 124.
8 Ibid.
The demonstration method is used to a great extent in teaching industrial arts, therefore, it is necessary for an industrial arts teacher to be able to perform well the various operations involved in a demonstration designed to teach a group of students some specific operation or operations. In class demonstrations, good craftsmanship stands out as one of the best assets of an industrial arts teacher. The ability to perform the basic skills in an efficient manner varies among industrial arts teachers because some teachers acquire more skill than others, due to the differences in the preparation programs in different institutions, and because of experience acquired in industry.

The seventh and last general qualification listed concerning the qualifications of an industrial arts teacher was stated as "A willingness to enter industry for a period of not less than six weeks (twelve weeks are recommended) every summer until the industrial arts teacher has gained practical experience in each type of activity he is teaching." This suggests that the teacher should work in various industries and actually gain practical experience in the various phases of industrial arts he is teaching. This type of preparation should continue from year to year until the industrial arts teacher has acquired some experience in all the areas and

skills included in the industrial arts program. This six-to-
twelve-weeks' training period is not mandatory but is highly
recommended, because in some instances the teacher-training
institutions do not have all of the facilities needed to teach
adequately all the phases and skills included in an industrial
arts program.

Specific Qualifications of Industrial Arts Teachers

The same bulletin recommends some specific qualifications
for industrial arts teachers. The first specific qualification
is as follows:

1. An industrial arts teacher shall have at least
twenty-four semester hours of college credit in
industrial arts. These credits shall include
only the practical laboratory and drawing courses.
In addition, the teacher must have at least one
course in methods of teaching industrial arts.
Such industrial arts courses must be taken in an
approved industrial arts teacher-training institu-
tion of college rank. 10

This qualification involves two specific types of
preparation that must be included in the preparation of
industrial arts teachers. The first type of preparation in-
volves twenty-four semester hours in practical laboratory
courses. These courses should be so organized and taught
that the prospective industrial arts teacher will acquire a
working knowledge of the various materials and processes
included in a program. The second type of preparation

10 Ibid., p. 124.
involves the methods and techniques used to teach industrial arts. This type of preparation must be obtained in an approved teacher-preparation institution with a program designed to prepare industrial arts teachers. It is not specified that this school be a college, but that it be of college rank.

In order to be able to understand better the next specific qualification concerning the industrial arts teacher, a brief description of the so-called "Laboratory of Industries" plan of industrial arts that is recommended for junior high level is presented as follows:

The Laboratory of Industries is a basic or beginning course in industrial arts. . . . If offered in the seventh or eighth year, in a twelve year system, this is a non-affiliated course. The work for the ninth year must include four elective divisions of nine weeks each and must be organized for a minimum of thirty-six weeks. . . . For economic reasons, the Laboratory of Industries is equipped for a group of about six students in each activity. This means that under this set-up a teacher will give instruction during the class hour in at least four activities. . . .

The foregoing description of the plan recommended for industrial arts at the junior high school level states that the program must include exploratory activities in at least four of the various phases of industrial arts such as wood, metal, drawing, crafts, electricity, graphic arts, etc. The four phases selected are organized and taught simultaneously.

11 Ibid., p. 19.
with a group of pupils working in each phase in the same shop. In such a program it is necessary that the teacher must have preparation in many of the phases of industrial arts.

The second specific qualification pertaining to the qualification of industrial arts teachers who teach the Laboratory of Industries is as follows:

A teacher of Laboratory of Industries shall possess as part of the twenty-four hours of credit a minimum of three semester hours, or approved practical experience, certified by an approved teacher-training institution, in each activity he teaches. For example, a teacher teaching woodwork, electrical work, drawing, and metal work, four approved divisions of the Laboratory of Industries, shall have had three semester hours' credit in each division. 12

This qualification as stated is self-explanatory and emphasizes that in order for an industrial arts teacher to teach in a school system in which the Laboratory of Industries plan is used, his preparation should include at least one three-hour course in at least four of the various phases of the industrial arts that he teaches. These three-hour courses may be included in the twenty-four semester hours required, as indicated previously.

The third and last specific qualification concerning the qualifications of industrial arts teachers is stated as follows:

A teacher of any other affiliated industrial arts course shall possess a minimum of six semester hours

12 Ibid., p. 124.
of college credit, or approved practical experience, for the first unit of credit affiliated in that course. For each additional unit of credit of affiliation in the same course, the teacher must possess a minimum of three additional semester hours of college credit or approved practical experience. For example, a teacher of general woodworking I and II, first year, accredited for one full unit of credit, shall possess six semester hours of college credit in woodworking. If he teaches general woodworking I, II, III, and IV, first and second years, accredited for a total of two full units of credit, he shall possess a total of nine semester hours of college credit in woodworking—six semester hours of college credit for the first year, general woodworking I and II, and three additional semester hours of college credit for the second year, general woodworking III and IV. 13

This qualification is very specific and pertains to the affiliation of work. A teacher in a school system which offers one affiliated unit in any phase of industrial arts must have at least six semester hours of college credit in that particular phase of the work. For example, a school may affiliate one unit of woodworking provided the industrial arts teacher has six semester hours of college preparation in woodworking. For each additional affiliated unit in woodworking the teacher must have three additional semester hours of college credit in the area of woodworking. A school may affiliate from one to two units of woodworking, provided the industrial arts teacher has a minimum of nine semester hours of college preparation in the area of woodworking.

The foregoing qualification requirements for industrial arts teachers employed in schools that planned to obtain

13 Ibid., p. 19.
additional affiliated credit in industrial arts went into effect in 1940.

The following statement pertains to this requirement:

Note: These requirements were put into effect on September 1, 1940, for all beginning industrial arts teachers starting during the school year 1940-41 and after that date. All industrial arts teachers in service, or those who had taught industrial arts subjects prior to September 1, 1940, must meet these requirements if they plan to obtain any additional unit of credit for their school in the subject they are teaching, or if they change their subject assignments after that date. All practical training or experience must be certified by an approved teacher-training institution. 14

It was noted that in addition to the prescribed requirements for credit, all of the preparation and experience of industrial arts teachers must be certified by an approved teacher-training institution.

Summary

The requirements concerning the qualifications of industrial arts teachers set forth by Bulletin No. 382, published by the State Department of Education, are of four general types. First, there are the general requirements for teaching any phase of industrial arts. They are as follows: the ability to work with and lead young people, a knowledge of the principles of good teaching, and an understanding of educational

14 Ibid., p. 125.
psychology. Second, there are specific requirements concerning the minimum amount of college work in industrial arts needed to be completed for certification. Third, there are requirements concerning the ability of the industrial arts teacher to perform the actual processes and skills he is teaching. Fourth, there are specific requirements concerning the practical application of these processes and skills in everyday life in the industrial world.
CHAPTER III

QUALIFICATIONS OF INDUSTRIAL ARTS TEACHERS AS
RECOMMENDED BY LEADERS IN THE FIELD OF
INDUSTRIAL ARTS

One of the stated purposes of this study was to present and analyze the recommendations of leaders in industrial arts education with respect to the qualifications of teachers of industrial arts. As indicated by their writing, the opinions and recommendations presented here have been selected because they are the opinions and recommendations of men who have made outstanding contributions to industrial arts in general, and because of their life-long devotion to the upgrading of the field. The views of other educational leaders outside of the area of industrial arts were included and analyzed for meaning.

The recommendations of Douglass, Ericson, Friese, Mays

1 Harl R. Douglass, Organization and Administration of Secondary Schools, pp. 84-91.

2 Emanuel F. Ericson, Teaching the Industrial Arts, pp. 56-165.


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and Casberg, Reeder, Schweickhard, Selvidge and Frycklund, and Struck were sought concerning the qualifications of teachers. These leaders were found, with respect to the qualifications of teachers, to be in agreement on professional preparation, teaching experience, and trade experience.

Professional Preparation

After studying data regarding the qualifications of teachers in secondary schools, Douglass placed much emphasis upon professional preparation. He stated his views as follows:

It is becoming evident that more than four years of college or university study are needed for the complete preparation of teachers for secondary schools. As rapidly as possible those having to do with the selection of teachers should come to require at least one year of work beyond the four-year course leading to the bachelor's degree. In addition to bringing about more effective preparation of teachers, such a requirement will operate to reduce materially the

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large number of men and women who enter teaching only temporarily, are not professionally interested in their calling, and can not be counted upon to make professional growth. . . . 9

The foregoing statement by Douglass is interesting and illuminating in that it indicates, in part, his thinking with respect to teacher preparation. He indicated that adequate preparation was of first importance in his advice to those who have to do with the selection of teachers; Douglass indicated that not only is it necessary for a teacher to have professional preparation, but also that an additional year of preparation was desirable and should be added to the regular four-year course leading to the bachelor's degree.

Concerning the preparation of industrial arts teachers Ericson stated the following:

Successful teaching is dependent upon knowledge of fundamental educational principles and methods. Such knowledge comes from professional work in teacher training institutions and from continued study and research. Requirements in this field of work are now specified by state departments of education for certification to teach in public schools. . . . 10

While Ericson did not stress a prescribed amount of preparation, as did Douglass in recommending one year of work beyond the regular four-year course, his statement implies that

9 Douglass, op. cit., p. 86.

10 Ericson, op. cit., p. 348.
successful teaching is dependent upon knowledge acquired through professional preparation. Ericson also emphasized the need for continual professional preparation and growth, but indicated that specific requirements for certification purposes should be determined by the respective state departments of education.

Friese considered professional preparation necessary for a prospective teacher. He indicated that this professional preparation was comparable to "a tool of a trade" in the following statement:

Professional training is needed to give the prospective teacher the tools of his trade as a teacher. It is needed for a true understanding and judgment of the adolescent boy. It is needed, in brief, to give the teacher all of the information and training needed to teach both boys and girls his subject.

The foregoing statement indicates that Friese's beliefs are in agreement with those of Douglass and Ericson concerning the preparation of teachers in that he, too, recognized the need for adequate professional preparation for industrial arts teachers.

Although Mays and Casberg limited their writing concerning the qualifications and professional preparation of industrial arts teachers, it was found that they placed adequate professional training near the top of their list.

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Friese, op. cit., p. 357.
of recommended qualifications. With respect to the qualifications of industrial arts teachers, they stated the following:

The qualifications usually involved in trying to determine a teacher's value are commonly classified as (1) academic preparation, (2) technical training, and (3) professional training. . . . 12

Mays and Casberg recognized three types of preparation as necessary in the qualifications of industrial arts teachers. These types of preparation were, namely, academic, technical, and professional.

As Seeder was more concerned with general education, he did not place professional preparation at the very top of the list of qualifications desirable for teachers. He did stress professional preparation, however, as a consideration of considerable importance. He made the following statement:

The best means of determining the candidate's fitness to teach is to watch him teach; often this observation may be made either in the practice-teaching classes in the teacher-preparing institution, or in the teacher's present position if he happens to be already in service. The administrators of many school systems deem such trial teaching so important that they require every candidate who is seriously considered for a position to teach a few days in the community before he may be placed upon the list of available candidates. 13

12 Mays and Casberg, op. cit., p. 160.

13 Reeder, op. cit., p. 128.
Reeder implied in the foregoing statement that, although professional preparation was essential to teacher preparation, perhaps more emphasis should be placed on practice-teaching.

Schweickhard, too, placed professional preparation high on the list of qualifications for industrial arts teachers. He stated:

The professional part of the teacher's training should include the fundamental courses in educational subjects which are planned and offered for all teachers. . . . In addition, a substantial part of his work should consist of professional studies in the special field of industrial arts education. . . . The total amount of professional training taken by the prospective industrial arts teacher should equal the professional training requirements for other teachers of similar rank. The teacher in any field who is decidedly lacking in professional preparation must be considered inadequate for the situation in which he is placed. 14

Schweickhard stated that without sufficient professional preparation, the teacher of industrial arts, or the teacher in any field, is lacking in the necessary qualifications for effective teaching.

Theodore Struck did much writing in the field of industrial arts. In the book entitled Foundations of Industrial Education he discussed professional preparation of teachers and stated that:

The qualifications are usually stated in terms of: (a) trade experience; (b) general education;

14 Schweickhard, op. cit., p. 289.
and (c) professional training. Professional training is usually stated either in terms of the number of clock hours of such training required or in terms of semester hours of training demanded.

At least three plans are used in determining the qualifications of teachers. One or more of them may be used in any given city or school district. The plans are as follows: (a) on the basis of credential; (b) on the basis of credential plus an oral or written examination; (c) on the basis of an oral test, a written test, and a performance test.

While Struck did not place professional preparation first in importance, his statement is in agreement with present qualifications now in use by school systems that require specified professional training and preparation for their teachers. He also implied that this amount of professional preparation was usually specified on the basis of clock hours or semester hours.

Strickler made a study concerning the qualifications of industrial arts teachers in thirty-seven states in 1927. One of the specific purposes of this study was to find out, as nearly as possible, the amount of professional preparation existing among industrial arts teachers in the United States at that time. He found that:

Sixty-two one hundredths of one per cent of the 480 teachers have the Ph. D. degree, 3.33 per cent have the master's degree, 31.25 have the bachelor's degree, 31.25 have diplomas from institutions of higher learning, and 35.42 per cent have had one year or less of college work. The training of industrial

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15 Struck, op. cit., p. 450.
It was interesting to note that the small amount of professional preparation completed by industrial arts teachers, as indicated in Strickler's study, seemingly, confirms a belief that the qualifications of industrial arts teachers are below those qualifications of teachers in some of the other subject matter areas. It was also interesting to note that professional preparation and the training qualifications in general of industrial arts teachers are constantly improving.

The opinions and recommendations of leaders in education concerning the qualifications of teachers with regard to professional preparation have been presented. These leaders were in agreement with each other in that they recognized the necessary part that professional preparation plays in the preparation of effective teachers.

Teaching Experience

Douglass did not state definitely the amount of teaching experience he believed necessary to qualify a teacher to teach effectively; he pointed out, however, several facts that are prevalent today in regard to the existing qualifications of teachers in the junior and senior high schools of the United

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Concerning the importance of teaching experience, Douglass stated the following:

Unfortunate practices have been operated to bring into the junior high school, in larger numbers than is desirable, teachers of two types as to experience: teachers gaining the experience supposedly to qualify them for positions in the senior high school, and mature men and women of long elementary school experience, whom it is desirable to 'promote' to better positions.

Frequently candidates for positions in large high schools are required to have had two years of experience. If salaries are distinctly above the average, this requirement is probably justified from the point of view of the interests of the local school, however, desirable it might be to have all beginning teachers get their first two or three years of experience in larger schools where better supervision is usually to be had and where a more complete departmentalization exists.

Teaching experience, as indicated by Douglass, does not always qualify properly teachers for effective teaching. If teaching experience is used as a means of qualification for advancement of teachers from the lower grades to the upper grades, Douglass believes this is an improper use of professional experience, and ineffective teaching is likely to occur. Douglass also pointed out the possibility that perhaps better qualified teachers would exist if all beginning teachers could acquire experience in large school systems where more adequate supervision usually exists. Unfortunately, this is not always possible.

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17 Douglass, op. cit., p. 84.
In a book in which the importance of teaching experience was discussed, Ericson stated:

It will be agreed that actual performance of work under reasonably favorable conditions leads toward perfection. This is not always true, however, because it is quite possible for one who learns solely through his own efforts to persist in wrong practices and inefficient and obsolete methods, while other people have discovered more efficient ones that are unknown to him. . . . 18

The value of teaching experience as a part of the qualification of teachers, Ericson indicated that, under favorable conditions, certain experiences could prove to be profitable. On the other hand, the wrong kind of experience, or no experience at all, tends to lead a teacher into improper channels and, therefore, a poorly qualified teacher may be the result.

Again, Douglass and Ericson were in agreement, as indicated by their suggestions concerning teaching experience as a desirable part of the over-all qualifications of a teacher. Although each writer treated the subject of teaching experience from somewhat different angles, they were in agreement in that they both stated that successful teaching experience is desirable provided the experience comes from properly qualified sources.

Friese in his writings did not consider the aspect of teaching experience as a part of the qualifications of teachers.

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18 Ericson, op. cit., p. 348.
This does not necessarily indicate that Fries® was unaware of the value of teaching experience as being a part of the qualifications for industrial arts teachers, but perhaps indicates that he does believe it to be of minor importance.

Mays and Casberg emphasized the value of teaching experience as one phase of the qualifications of teachers as evidenced by the following statement:

Until more reliable and objective instruments for selecting teaching personnel are available, it is necessary for the administrator to use every reasonable means he possesses to enhance the objectivity of his estimation of the qualifications of candidates for teaching positions. Furthermore, in considering such items as trade experience and teaching experience, it is extremely important that some measure of the exact character of the experience he obtained . . . . 19

Schweickhard did not indicate in his writings that he considered teaching experience to be one of the necessary qualifications of teachers. In this respect it may be assumed that he was in agreement with Fries®, who also did not emphasize successful teaching experience as a part of the qualifications of teachers.

Supporting the viewpoint of Douglass and Ericson, Mays and Casberg stressed that if teaching experience is to be used as a means of determining qualifications of teachers, then the true nature or character of the experience must be

ascertained. This is necessary since experience in one field of teaching does not necessarily qualify one to be an efficient teacher in another field.

Reeder's view of teaching experience as a part of the qualifications for teachers was compatible with the opinions of the authorities previously presented in that he recognized successful teaching experience as one of the qualification requirements often enforced in city school systems. He stated the following:

Another local requirement frequently found, especially in the school systems, is teaching experience. In fact, in the school systems of the larger cities such experience is almost a universal requirement. One or two years of experience is generally required. These larger school systems pay higher salaries than the small systems and in consequence feel justified in requiring all new appointees to have had successful experience elsewhere. Such a requirement, of course, makes it necessary for beginning teachers to secure their experience in the rural and village schools. 20

This indicates that in the larger school system where greater care usually is taken in the selection of teaching personnel, teaching experience is considered very important as a qualification requirement.

According to Selvidge and Fryklund, the need for successful experience on the part of a teacher can be appreciated if the teacher will recall some of his own earlier experiences in the teaching field. These writers stated:

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20 Reeder, op. cit., pp. 170-171.
Insufficient experience leads to failure. The learner who blunders or spoils stock in attempting a new operation does so because he lacks experience. As he builds up experience he ceases to spoil stock and thus overcomes his difficulty. Compare the novice in 'trouble shooting' on an automobile with the one who has had experience. The one with the experience manipulates less and reasons more as he determines the difficulty.

Although Selvidge and Fryklund did not stress teaching experience on the basis of good or bad situations, they recognized the need of successful experience to qualify a teacher for more effective teaching.

Struck did not stress teaching experience when discussing the necessary qualifications for a teacher. His opinion concerning teaching experience as a qualification for a teacher was perhaps similar to that of Friese and Schweickhard in that this aspect of the qualifications of a teacher was not included in any of his writings.

In the preceding paragraphs the opinions and recommendations of leaders in education concerning the qualifications of teachers with respect to teaching experience, have been presented. These authors were, in the main, in agreement with each other in that they recognized and discussed the value and desirability of teaching experience as a part of the qualifications of teachers.

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21 Selvidge and Fryklund, op. cit., p. 310.
Trade Experience

The writings of Douglass indicate that he was concerned primarily with the over-all program of secondary schools and his statements with respect to qualifications for teachers pertain to teachers in general. As a result, he did not list trade experience among the general qualifications he believed desirable for teachers.

Unlike Douglass, Ericson, whose recommendations were channeled more specifically toward industrial arts and toward the teaching of industrial arts, placed trade experience or ability as a craftsman among the qualifications he believed to be necessary for successful teachers of industrial arts. He stated, in part, the following:

Lacking in mechanical skill, the instructor cannot hope to accomplish maximum results. . . . It is the duty of the instructor to qualify himself through sufficient practice and contact with trade practice, if such contact is lacking, in order that he may at all times set the proper example in craftsmanship.

In the foregoing statement by Ericson emphasis is placed on the fact that successful teaching of industrial arts is dependent, in part, upon the amount of trade experience of an industrial arts teacher. If trade experience is lacking, then mechanical skill will also be lacking, according to Ericson.

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22 Ericson, op. cit., p. 348.
Friese was in agreement with Ericson, in that he stated that trade experience was an essential part of the qualifications for industrial arts teachers. He made the following statement:

Practical training and experience constitute an important phase of the industrial arts teacher's equipment. Such experience as a wage-earner in any trade or industrial occupation is highly valuable for the sake of getting the worker's point of view, learning the everyday requirements of industrial employment, and acquiring first-hand knowledge of the world of industry which the industrial arts department aspires to interpret to the boy. . . . 23

While Ericson placed emphasis upon trade experience as an aid to skill, Friese placed more emphasis upon trade experience as an aid in transferring knowledge of industry to the pupil. Both authorities, however, were in agreement in that trade experience was necessary with respect to those qualifications essential for competent industrial arts teachers.

In making common classifications of qualifications of industrial arts teachers, Mays and Casberg stated as follows:

In choosing industrial arts teachers, trade experience usually is placed last or nearly last and the others are variously ranked according to the particular viewpoint of the administrator. . . . 24

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23 Friese, op. cit., p. 354.

24 Mays and Casberg, op. cit., p. 160.
Along with other leaders in education, Mays and Casberg were aware that trade experience is an asset to the qualifications of industrial arts teachers. Although they recognized trade experience as an important phase in determining the qualifications of industrial arts teachers, they, as indicated by the foregoing statement, seem to regard trade experience as being of less importance than some of the other qualifications, especially from the viewpoint of the school administrator.

Reeder's opinion in regard to trade experience as a qualification for teachers is similar to that of Douglass. He was more concerned with the qualifications of teachers for all of the various subject matter areas and did not place trade experience among his recommended qualifications for industrial arts teachers.

Concerning some of the objectionable assumptions concerning the industrial arts teacher's qualifications, Schweickhard made the following statement:

It has been assumed by some that the industrial arts teacher should be primarily a tradesman: that is, that he shall have had some trade training, a substantial amount of trade experience and habits. It may readily be accepted that there are certain kinds of training, experience, and knowledge, as well as certain habits of work, and some attitudes toward work, that the tradesman and the industrial arts teacher may have in common, but on the other hand, numerous items of the tradesman's equipment can well be left out of the teacher's qualifications.

Since industrial arts work of the past has dealt with the use of wood and woodworking activities more commonly than any other one thing, it came about that the tradesman as a teacher possessed ability in woodworking only. Occasionally the woodworking may have
included carpentry, but usually it was confined to furniture making. When faced with the futility of attempting to make furniture makers out of all of the boys in school, teachers and administrators came forward with the argument of its educational value. This is a legitimate defense, but cannot be reconciled with the assumption that the teacher of such work should be first of all a tradesman. To insure educational values, he must be equipped educationally as well. 25

This statement indicates that Schweickhard's thinking with respect to trade experience was similar to the beliefs of Ericson, Friese, and Mays and Casberg, as each placed less emphasis on trade experience than on some of the other qualifications. Yet, Schweickhard and Mays and Casberg indicated that perhaps too much emphasis was placed on trade experience; Ericson and Friese only indicated that trade experience was essential.

The opinions of Selvidge and Fryklund in regard to trade experience as one of the qualifications of industrial arts teachers are reflected in the following statement written by these authorities:

... The prospective trade teacher is skilled in the practice of his trade, but this is only the raw material which he will use in teaching. He has no training in the selection or the organization of the material in which he must give instruction, and he is unfamiliar with the laws and conditions which govern the process of learning. His training as a teacher must correct these deficiencies.

In like manner, the industrial arts teacher must be able to choose, classify, and arrange the experiences he wishes to give. . . 26

The preceding statements made by Selvidge and Fryklund definitely point out the need for trade experience as a qualification necessary for both the trade teacher and the industrial arts teacher. They seem to assume that the trade teacher will have trade experience, and the industrial arts teacher must be able to choose, classify, and arrange the experiences he wishes to give.

Struck placed more emphasis upon trade experience as a desirable qualification for industrial arts teachers than did any of the other authorities included in the study. He stated in part:

. . . . It is to be expected, even allowing for certain equivalents that may be recognized, that the shop teachers are men who have had good industrial experience. In the past it is possible that in some instances more freedom has been used than is now wise in the matter of accepting equivalents for both general education and practical working experience in industry. It is probable that in some instances not sufficient inquiry was made as to the exact nature and quality of the trade experience that the prospective teachers offered in partial fulfillment of entrance certification requirements, but these things are now being watched more carefully. 27

The industrial arts teacher, as indicated by Struck, was expected to have acquired some trade experience. He intimated

26 Selvidge and Fryklund, op. cit., p. 16.

27 Struck, op. cit., p. 448.
that perhaps the exact nature of the trade experience was uncertain at times, but that trade experience was being stressed more and more.

In concluding his study concerning the qualifications of industrial arts teachers, Strickler stated:

Trade experience is an important element of industrial arts teachers' training. Thirty-eight percent of the 480 teachers have had a year or more of trade experience.

The amount of trade experience of industrial arts teachers is in inverse ratio to their professional training.

The trade experience of industrial arts teachers represents a sampling of many kinds of work with nationally known firms and may be accepted as work typical of the various important trade fields. 28

The foregoing statement by Strickler indicates that the average industrial arts teacher has had more professional preparation than trade experience in 1927. He also found that the trade experiences of the teachers included in the study included a wide variety of trades.

In the foregoing paragraphs the opinions and recommendations of leaders in education, concerning the qualifications of teachers, have been presented. They were in agreement with each other in that they recognized the value of trade experience as a part of the qualifications of industrial arts teachers.

28 Strickler, op. cit., p. 70.
Summary

The recommendations of certain selected leaders in education, vocational education, and industrial arts education concerning the qualifications of teachers have been presented. It was found that these authorities were in agreement with each other concerning the necessity and importance of professional preparation evidenced by their statements that all teachers should have advanced professional preparation, and that, if possible, this preparation should extend beyond the usual four-year program leading to the bachelor's degree. It was believed that, regardless of the subject or subject area for which a teacher is preparing, the professional preparation, to a degree, should remain relatively the same.

Concerning teaching experience, the authorities were in agreement that successful teaching experience is always an asset to the qualifications of any teacher. Trade experience was considered especially desirable by some of the authorities for the vocational education teacher; it was also considered to be of value to the industrial arts teacher, but not always mandatory.
CHAPTER IV

CURRENT QUALIFICATIONS AND STATUS OF 190 INDUSTRIAL
ARTS TEACHERS IN THE
STATE OF TEXAS

In this chapter the data concerning the current qualifications and status of 190 industrial arts teachers in the public schools of Texas are presented. In order to ascertain, as nearly as possible, the current qualifications and status of the industrial arts teachers in the public schools of Texas, a questionnaire was developed and mailed to 380 teachers. This questionnaire was filled out and returned by 190 industrial arts teachers, scattered widely over the State of Texas. A copy of the questionnaire is included in the Appendix. The data supplied in the returned questionnaires have been considered carefully and an attempt has been made to determine a profile of the average teacher of industrial arts in the secondary schools of Texas with respect to professional preparation, teaching experience, trade experience, age, marital status, average salary, and in-school and out-of-school activities. These data are presented through the use of tables and are analysed for their implications.
The Professional Preparation of 190 Industrial Arts Teachers

Table 1 shows data concerning the professional preparation of the 190 industrial arts teachers included in the study.

**TABLE 1**

THE ACADEMIC DEGREES HELD BY 190 INDUSTRIAL ARTS TEACHERS TEACHING IN THE PUBLIC SCHOOLS OF TEXAS IN 1953

<table>
<thead>
<tr>
<th>Kind of degree</th>
<th>Number of teachers</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science</td>
<td>76</td>
<td>40.0</td>
</tr>
<tr>
<td>Master of Science</td>
<td>37</td>
<td>24.7</td>
</tr>
<tr>
<td>Master of Education</td>
<td>41</td>
<td>22.6</td>
</tr>
<tr>
<td>Master of Arts</td>
<td>23</td>
<td>12.1</td>
</tr>
<tr>
<td>Bachelor of Arts</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Teaching without a degree</td>
<td>1</td>
<td>.5</td>
</tr>
</tbody>
</table>

The data in Table 1 indicate that all but one of the teachers had earned the bachelor's degree. The data also reveal that there were three types of masters degrees completed by the teachers, namely, the Master of Science, the Master of Education, and the Master of Arts. Forty-seven of the teachers, or 24.7 per cent have completed the requirements for the Master of Science Degree; forty-one, or 21.6 per cent have completed the Master of Education Degree; and twenty-three,
or 12.1 per cent have completed the Master of Arts Degree. The percentage of industrial arts teachers in the white schools who have master's degrees is similar to that of Negro industrial arts teachers. Ottinger made a study in 1952 in which he found that "a significant percentage of the teachers of industrial arts in the Negro high schools hold the master's degree." The study made by Ottinger, in part, concerned the qualifications of the teachers of industrial arts in the Negro high schools of Texas. The data in Table 1 show that 111 of the 190 teachers had completed a master's degree of some type. Only one teacher was teaching without having earned a degree.

As indicated by the data in Table 2, the industrial arts teachers in the public schools of Texas have an average of 53.8 semester hours per teacher of college preparation in industrial arts. These data also show that the teachers of industrial arts have completed an average of 34.8 semester hours per teacher in professional education courses. Concerning preparation in the various phases of industrial arts the data indicate that teachers of industrial arts have completed a greater number of semester hours in the area of woodwork, an average of 13.4 semester hours per teacher, than in any

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1 Sam Ottinger, "Industrial Arts Programs in Negro High Schools of Texas," Unpublished Master's thesis, Department of Industrial Arts, North Texas State College, Denton, Texas, June, 1953.
other phase. Drawing ranked second with an average of 9.4 semester hours per teacher. The data in Table 2 also show

<table>
<thead>
<tr>
<th>Phases of Preparation</th>
<th>Average Number of Semester Hours Completed in Each Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>34.8</td>
</tr>
<tr>
<td>Woodwork</td>
<td>13.4</td>
</tr>
<tr>
<td>Drawing</td>
<td>10.6</td>
</tr>
<tr>
<td>Metalwork</td>
<td>9.4</td>
</tr>
<tr>
<td>Methods of teaching</td>
<td>9.0</td>
</tr>
<tr>
<td>General crafts</td>
<td>3.7</td>
</tr>
<tr>
<td>Electricity</td>
<td>1.8</td>
</tr>
<tr>
<td>Design</td>
<td>1.6</td>
</tr>
<tr>
<td>Printing</td>
<td>.9</td>
</tr>
<tr>
<td>Auto mechanics</td>
<td>.8</td>
</tr>
</tbody>
</table>

that the average number of semester hours completed by the 190 industrial arts teachers was less than one semester hour per teacher in two of the phases of industrial arts, namely, printing and auto mechanics. The average number of semester hours per teacher was .9 and .8 respectively in these two phases. The median number of semester hours completed in industrial arts by the teachers included in this study was 50.3.
The teachers were asked, concerning their preparation in industrial arts as a whole, if they believed they had received adequate preparation to teach industrial arts effectively. A minority, forty-five, or 28.9 per cent, of the teachers indicated that their preparation was not adequate for effective teaching of industrial arts.

The majority, 135 or 71.1 per cent, answered the question in the affirmative. They were asked to indicate by checking the various phases in which they believed that they had not received adequate preparation.

In Table 3, data are presented concerning the number of industrial arts teachers in this study who believed that their professional preparation was inadequate in certain phases of industrial arts.

As shown by the data in Table 3, auto mechanics stands out noticeably as a phase in industrial arts in which the greatest number of teachers believed themselves to be prepared inadequately for effective teaching. According to the data, general crafts and design ranked second and third, respectively, as phases of industrial arts in which the teachers indicated that they believed themselves to be prepared inadequately to teach; there was no appreciable difference between the two with respect to numbers. Next, in rank were printing, metal work, methods of teaching, and drawing.
TABLE 3

PHASES OF INDUSTRIAL ARTS IN WHICH 190 TEACHERS INDICATED THAT THEIR PREPARATION WAS INADEQUATE

<table>
<thead>
<tr>
<th>Phases</th>
<th>Number of teachers</th>
<th>Per cent of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto mechanics</td>
<td>62</td>
<td>32.6</td>
</tr>
<tr>
<td>General crafts</td>
<td>50</td>
<td>26.3</td>
</tr>
<tr>
<td>Design</td>
<td>49</td>
<td>25.8</td>
</tr>
<tr>
<td>Printing</td>
<td>46</td>
<td>24.2</td>
</tr>
<tr>
<td>Metal work</td>
<td>36</td>
<td>18.9</td>
</tr>
<tr>
<td>Methods of teaching</td>
<td>33</td>
<td>17.4</td>
</tr>
<tr>
<td>Drawing</td>
<td>26</td>
<td>13.7</td>
</tr>
<tr>
<td>Woodwork</td>
<td>19</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Only nineteen teachers out of the 190 stated that they believed that their training in the area of woodwork was inadequate.

Data concerning the teachers of industrial arts included in this study who have done additional work since completing their latest degree are presented in Table 4. Seventy-five of the teachers, or 39.4 per cent, have enrolled in college courses for additional preparation since completing their last degree. In-service training was participated in by fifty-six, or 29.5 per cent of the industrial
TABLE 4
TYPES OF ADDITIONAL PREPARATION COMPLETED BY 190 INDUSTRIAL ARTS TEACHERS IN TEXAS SINCE COMPLETING THEIR LAST DEGREE

<table>
<thead>
<tr>
<th>Additional preparation</th>
<th>Number of teachers</th>
<th>Per cent of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer school</td>
<td>75</td>
<td>39.4</td>
</tr>
<tr>
<td>In-service training</td>
<td>56</td>
<td>29.5</td>
</tr>
<tr>
<td>Night school</td>
<td>33</td>
<td>17.4</td>
</tr>
<tr>
<td>Regular college</td>
<td>21</td>
<td>11.0</td>
</tr>
<tr>
<td>Extension courses</td>
<td>8</td>
<td>4.2</td>
</tr>
</tbody>
</table>

arts teachers. This type of additional preparation ranked second to summer school. Thirty-three, or 17.4 per cent, of the teachers have attended some type of night school, and twenty-one, or 11 per cent, have attended college during a regular long session; only eight, or 4.2 per cent of the teachers, stated that they had extended their education by taking extension courses.

After ascertaining the amount of professional preparation of the teachers of industrial arts included in this study, an attempt was made to ascertain where they had received their preparation. These data are presented in Table 5.
TABLE 5
THE TEN LEADING UNIVERSITIES AND COLLEGES WHICH HAVE BEEN ATTENDED BY 190 INDUSTRIAL ARTS TEACHERS IN TEXAS

<table>
<thead>
<tr>
<th>College or University attended</th>
<th>Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Texas State College</td>
<td>51</td>
</tr>
<tr>
<td>East Texas State Teachers College</td>
<td>51</td>
</tr>
<tr>
<td>Texas Agricultural and Mechanical College</td>
<td>39</td>
</tr>
<tr>
<td>Sam Houston State Teachers College</td>
<td>23</td>
</tr>
<tr>
<td>Southwest Texas State Teachers College</td>
<td>18</td>
</tr>
<tr>
<td>University of Texas</td>
<td>17</td>
</tr>
<tr>
<td>University of Houston</td>
<td>14</td>
</tr>
<tr>
<td>West Texas State Teachers College</td>
<td>11</td>
</tr>
<tr>
<td>Texas Technological College</td>
<td>8</td>
</tr>
<tr>
<td>Colorado State College of Education</td>
<td>8</td>
</tr>
</tbody>
</table>

The data in Table 5 show that of the 190 teachers considered in this study, the same number have attended North Texas State College and East Texas State Teachers College. Fifty-one teachers received their college preparation at North Texas State College and fifty-one received their preparation at East Texas State Teachers College. In descending order, Texas Agricultural and Mechanical College and Sam Houston State Teachers College ranked third and fourth, respectively, in regard to the number of industrial arts teachers who have previously attended them at one time or
another. The data in Table 5 reveal that some of the teachers have attended Texas Technological College and Colorado State College of Education; these schools ranked ninth and tenth, respectively, with respect to the ten leading senior colleges and universities attended by the teachers included in this study.

When the returned questionnaires were examined further it was found that the 190 teachers of industrial arts had received all or part of their professional preparation in sixty-nine different colleges and universities widely scattered over the United States. In many instances, however, only one teacher had attended a specific college or university. Only two teachers stated that they had received professional preparation from a college or university outside of the United States proper; one of these teachers had attended the University of Alaska, and the other had attended the College of Arts and Crafts, England.

Table 6 contains data concerning the teaching experience of 173 industrial arts teachers. Of the 190 teachers who returned the questionnaires, only 173 indicated the number of years of teaching experience.

When the data in Table 6 were examined, the number of years of teaching experience of these teachers was found to vary considerably. Nineteen of the industrial arts teachers stated that they had taught only one year; one of the teachers
stated that he had taught forty-six years. According to the data, the average length of teaching experience for all of the 173 teachers was 8.6 years per teacher.

An attempt was made to secure data concerning the amount and types of trade experience of industrial arts teachers. Table 7 contains the data concerning the number of industrial arts teachers included in the study who have had some type of

<table>
<thead>
<tr>
<th>Number of years of teaching experience</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>52</td>
</tr>
<tr>
<td>4 to 7</td>
<td>56</td>
</tr>
<tr>
<td>8 to 11</td>
<td>23</td>
</tr>
<tr>
<td>12 to 15</td>
<td>12</td>
</tr>
<tr>
<td>16 to 19</td>
<td>6</td>
</tr>
<tr>
<td>20 to 23</td>
<td>10</td>
</tr>
<tr>
<td>24 to 27</td>
<td>7</td>
</tr>
<tr>
<td>28 to 31</td>
<td>4</td>
</tr>
<tr>
<td>32 to 35</td>
<td>0</td>
</tr>
<tr>
<td>36 to 39</td>
<td>2</td>
</tr>
<tr>
<td>40 to 43</td>
<td>0</td>
</tr>
<tr>
<td>44 to 47</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5
THE NUMBER OF YEARS OF TEACHING EXPERIENCE REPORTED BY 173 INDUSTRIAL ARTS TEACHERS IN THE PUBLIC SCHOOLS OF TEXAS IN 1953
trade experience. The data show that some of the teachers have had more than one kind of trade experience.

TABLE 7

TRADE EXPERIENCE OF 190 INDUSTRIAL ARTS TEACHERS TEACHING IN THE PUBLIC SCHOOLS OF TEXAS IN 1953

<table>
<thead>
<tr>
<th>Type of trade experience</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter</td>
<td>103</td>
</tr>
<tr>
<td>Mechanic</td>
<td>23</td>
</tr>
<tr>
<td>Draftsman</td>
<td>21</td>
</tr>
<tr>
<td>Machinist</td>
<td>19</td>
</tr>
<tr>
<td>Welder</td>
<td>9</td>
</tr>
<tr>
<td>Sheet-metal worker</td>
<td>7</td>
</tr>
<tr>
<td>Painter</td>
<td>5</td>
</tr>
<tr>
<td>Salesman</td>
<td>4</td>
</tr>
<tr>
<td>Leathercraft worker</td>
<td>2</td>
</tr>
<tr>
<td>Printer</td>
<td>2</td>
</tr>
<tr>
<td>Blacksmith</td>
<td>1</td>
</tr>
<tr>
<td>Concrete worker</td>
<td>1</td>
</tr>
<tr>
<td>Plumber</td>
<td>1</td>
</tr>
<tr>
<td>No trade experience of any kind</td>
<td>52</td>
</tr>
</tbody>
</table>

The data in Table 7 show that of the 190 industrial arts teachers fifty-two have no trade experience of any kind. Carpentering was listed most frequently as the type of trade experience possessed by the teachers; 103 of them stated that
they had acquired experience in this trade at one time or another. Twenty-three teachers stated that they had worked, in addition to teaching, as mechanics; twenty-one had worked as machinists; nine had worked as welders; and seven had worked in the sheetmetal industry. Five teachers indicated that they had acquired experience as painters; four had been at one time or another employed as salesmen; two had been engaged as leathercraft workers; and two had been engaged as printers. One teacher stated that he had been employed in each of the following types of trade experience: blacksmithing, concrete working, and plumbing.

Table 8 presents data concerning the number of classes of industrial arts taught daily by the industrial arts teachers in the public schools of Texas who participated in this study.

Table 8 shows that the largest proportion of the industrial arts teachers included in this study were teaching five classes of industrial arts each day; one teacher stated that he taught seven classes each day; and one teacher reported that he taught eight classes each day. When the data were further treated it was found that the average number of classes in industrial arts taught each day by the 190 industrial arts teachers was 4.09 classes; the median number of classes was 3.7. This indicates that the average industrial arts teacher teaches one or more classes in some other subject matter area.
The data in Table 9 show the number of pupils taught daily by the 190 industrial arts teachers.

According to these data, the greater percentage of the industrial arts teachers taught from eighty to eighty-nine students each day. Twenty-five of the teachers taught from forty to forty-nine pupils daily; twenty taught from ninety to ninety-nine pupils daily. The data also reveal that eighteen of the industrial arts teachers taught from seventy to seventy-nine students each day; seventeen of the teachers taught from sixty to sixty-nine students daily. One teacher reported that he taught 250 students each day.
TABLE 9

DATA CONCERNING THE NUMBER OF PUPILS TAUGHT
DAILY BY 188 INDUSTRIAL ARTS TEACHERS IN
THE PUBLIC SCHOOLS OF TEXAS IN 1953

<table>
<thead>
<tr>
<th>Number of pupils</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-19</td>
<td>6</td>
</tr>
<tr>
<td>20-29</td>
<td>8</td>
</tr>
<tr>
<td>30-39</td>
<td>12</td>
</tr>
<tr>
<td>40-49</td>
<td>25</td>
</tr>
<tr>
<td>50-59</td>
<td>15</td>
</tr>
<tr>
<td>60-69</td>
<td>17</td>
</tr>
<tr>
<td>70-79</td>
<td>18</td>
</tr>
<tr>
<td>80-89</td>
<td>26</td>
</tr>
<tr>
<td>90-99</td>
<td>20</td>
</tr>
<tr>
<td>100-109</td>
<td>11</td>
</tr>
<tr>
<td>110-119</td>
<td>12</td>
</tr>
<tr>
<td>120-129</td>
<td>4</td>
</tr>
<tr>
<td>130-139</td>
<td>4</td>
</tr>
<tr>
<td>150-159</td>
<td>5</td>
</tr>
<tr>
<td>160-169</td>
<td>3</td>
</tr>
<tr>
<td>170-179</td>
<td>1</td>
</tr>
<tr>
<td>250-259</td>
<td>1</td>
</tr>
</tbody>
</table>

In addition to determining the number of pupils taught each day by the teachers included in this study an attempt was made to ascertain what classes they taught each day, other
than industrial arts. Table 10 presents data pertaining to
the classes taught other than industrial arts.

**TABLE 10**

**CLASSES OTHER THAN INDUSTRIAL ARTS TAUGHT EACH
DAY BY 190 INDUSTRIAL ARTS TEACHERS IN
THE PUBLIC SCHOOLS OF TEXAS IN 1953**

<table>
<thead>
<tr>
<th>Classes taught</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>General mathematics</td>
<td>18</td>
</tr>
<tr>
<td>Physical education</td>
<td>11</td>
</tr>
<tr>
<td>Algebra</td>
<td>10</td>
</tr>
<tr>
<td>General science</td>
<td>9</td>
</tr>
<tr>
<td>Driver education</td>
<td>7</td>
</tr>
<tr>
<td>History</td>
<td>6</td>
</tr>
<tr>
<td>Physical education</td>
<td>6</td>
</tr>
<tr>
<td>Biology</td>
<td>3</td>
</tr>
<tr>
<td>Geometry</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>2</td>
</tr>
<tr>
<td>Geography</td>
<td>2</td>
</tr>
<tr>
<td>Reading</td>
<td>2</td>
</tr>
<tr>
<td>Spanish</td>
<td>2</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Art</td>
<td>1</td>
</tr>
<tr>
<td>Economics</td>
<td>1</td>
</tr>
<tr>
<td>Social studies</td>
<td>1</td>
</tr>
<tr>
<td>Government</td>
<td>1</td>
</tr>
</tbody>
</table>
According to the data in Table 10, a greater proportion of the industrial arts teachers are teaching general mathematics classes, eighteen or 9.4 per cent, than any other subject matter outside of the field of industrial arts; physical education ranked second with eleven teachers, or 5.8 per cent, teaching one or more classes in this area; algebra ranked third with ten teachers, or 5.3 per cent; driver education was taught by seven industrial arts teachers, or 3.7 per cent; 3.2 per cent of the teachers taught physical education and 3.2 per cent taught history in addition to industrial arts classes. The data also indicate that other classes in other subject matter areas such as physics, art, government and Spanish were taught by industrial arts teachers, but the number of classes taught was small.

It was desired also to ascertain the age level or age levels of pupils the industrial arts teachers in this study were teaching. These data are presented in Table 11. It was found that a majority of the industrial arts teachers, ninety-nine or 52.1 per cent, were teaching industrial arts at the senior high school level. Fifty-eight, or 30.5 per cent, of the teachers stated that they taught at both the junior high-senior high school level; twenty-eight, or 14.7 per cent, stated that they were teaching at the junior high school level. The data in Table 11 show that three teachers,
TABLE 11

AGE LEVEL OR LEVELS OF PUPILS TAUGHT BY 190
INDUSTRIAL ARTS TEACHERS IN THE PUBLIC
SCHOOLS OF TEXAS IN 1953

<table>
<thead>
<tr>
<th>Age level taught</th>
<th>Number engaged in teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary school</td>
<td>2</td>
</tr>
<tr>
<td>Junior high school</td>
<td>28</td>
</tr>
<tr>
<td>Senior high school</td>
<td>99</td>
</tr>
<tr>
<td>Junior high and senior high schools</td>
<td>58</td>
</tr>
<tr>
<td>Elementary, junior high, and senior high</td>
<td>3</td>
</tr>
</tbody>
</table>

or 1.6 per cent, were teaching classes at the elementary, junior high, and senior high school level; and two teachers, or 1.1 per cent, were teaching industrial arts at the elementary school level.

Table 12 presents data concerning the extra-curricular activities participated in by the industrial arts teachers included in the study in addition to their regularly scheduled classes.

The sponsoring of clubs was the activity in which more of the teachers were engaged than any of the other activities; home-room responsibilities ranked second with only a slight difference with respect to the number of teachers associated with the two activities. Serving as class sponsors ranked third and playground supervision ranked fourth. Coaching
TABLE 12

EXTRA-CURRICULAR ACTIVITIES PARTICIPATED IN BY 190 INDUSTRIAL ARTS TEACHERS IN ADDITION TO THEIR REGULARLY SCHEDULED CLASSES IN THE PUBLIC SCHOOLS OF TEXAS IN 1953

<table>
<thead>
<tr>
<th>Activities</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Club sponsor</td>
<td>91</td>
</tr>
<tr>
<td>Home room</td>
<td>86</td>
</tr>
<tr>
<td>School class sponsor</td>
<td>68</td>
</tr>
<tr>
<td>Playground supervision</td>
<td>56</td>
</tr>
<tr>
<td>Coaching</td>
<td>41</td>
</tr>
<tr>
<td>Miscellaneous duties</td>
<td>32</td>
</tr>
<tr>
<td>Boy scouts</td>
<td>31</td>
</tr>
<tr>
<td>Adult classes</td>
<td>26</td>
</tr>
</tbody>
</table>

ranked fifth with respect to the extra-curricular activities engaged in by the industrial arts teachers. Some of the other miscellaneous duties included such things as serving as assistant at ball games, guidance counseling, swimming instructor, school census enumerator, bus duty, and Texas State Teacher's Association officer. Of the 190 teachers concerned in this study, only thirty-one reported they worked with Boy Scouts, and only twenty-six stated that they were engaged in teaching adult classes; this indicates that Boy Scout work and the teaching of adult classes were performed, for some reason, by fewer teacher than were any of the previously mentioned activities.
After gathering data concerning teaching experience, and those data related to teaching experience and professional preparation, it was desired to secure other general information concerning the industrial arts teachers included in the study. These data are presented in the following table.

Table 13 presents data pertaining to the number of teachers employed in the school systems in which the 190 industrial arts teachers were teaching. Apparently, a greater proportion of the teachers in this study were teaching in school systems that employ from twenty to twenty-nine teachers than in any other size of school system. School systems employing between ten and nineteen teachers ranked second with respect to size. In descending order, school systems employing between thirty and thirty-nine teachers and those employing between forty and forty-nine teachers ranked third and fourth, respectively, concerning the number of teachers who were employed in the school systems in which the 190 industrial arts teachers included in this study were teaching. Thirteen teachers reported they were teaching in a school system that employed from fifty to fifty-nine teachers; only seven were employed in a system which had from sixty to sixty-nine teachers. The size of the other schools ranged as follows: seventy to seventy-nine; eighty to eighty-nine; ninety to ninety-nine; and three industrial arts teachers
TABLE 13

NUMBER OF TEACHERS EMPLOYED IN 188 PUBLIC SCHOOLS
IN WHICH INDUSTRIAL ARTS TEACHERS WERE EMPLOYED

<table>
<thead>
<tr>
<th>Number of teachers on faculty</th>
<th>Number of industrial arts teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>5</td>
</tr>
<tr>
<td>10-19</td>
<td>42</td>
</tr>
<tr>
<td>20-29</td>
<td>53</td>
</tr>
<tr>
<td>30-39</td>
<td>36</td>
</tr>
<tr>
<td>40-49</td>
<td>23</td>
</tr>
<tr>
<td>50-59</td>
<td>13</td>
</tr>
<tr>
<td>60-69</td>
<td>7</td>
</tr>
<tr>
<td>70-79</td>
<td>3</td>
</tr>
<tr>
<td>80-89</td>
<td>3</td>
</tr>
<tr>
<td>90-99</td>
<td>3</td>
</tr>
</tbody>
</table>

were teaching in school systems which employed more than 100 teachers.

Table 14 presents data concerning the age of 190 industrial arts teachers. This information was believed to be pertinent to the study.

From the data in Table 14 it was noted that the age of the 190 industrial arts teachers ranged from twenty-one to sixty-five years. A greater number of teachers’ age, fifty-eight or 31 per cent, was between thirty-one and thirty-five years; next in descending order, forty-five, or 23.7 per cent
of the teachers were between twenty-six and thirty years of age. Fourteen of the teachers or 7.5 per cent were between fifty-one and fifty-five years of age; nine teachers or 4.7 per cent were between fifty-six and sixty years of age. The data in Table 14 show that the average age of the industrial arts teacher was 35.4 years; the median was 34.5 years.

On the questionnaire the teachers were asked to indicate their marital status. It was found that 179 teachers stated that they were married, and only eleven stated that they were

### Table 14

<table>
<thead>
<tr>
<th>Age range</th>
<th>Number of teachers</th>
<th>Per cent of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-25</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>26-30</td>
<td>45</td>
<td>23.7</td>
</tr>
<tr>
<td>31-35</td>
<td>58</td>
<td>31.0</td>
</tr>
<tr>
<td>36-40</td>
<td>31</td>
<td>15.4</td>
</tr>
<tr>
<td>41-45</td>
<td>22</td>
<td>11.7</td>
</tr>
<tr>
<td>46-50</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>51-55</td>
<td>9</td>
<td>4.7</td>
</tr>
<tr>
<td>56-60</td>
<td>5</td>
<td>2.7</td>
</tr>
<tr>
<td>61-65</td>
<td>2</td>
<td>1.1</td>
</tr>
</tbody>
</table>
not. In another section of the questionnaire, the teachers were asked for information concerning the number of children in each family.

Table 15 presents data concerning the number of children in the families of the teachers. On the basis of the data

<table>
<thead>
<tr>
<th>Number of children</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>64</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

in Table 15, a greater number of industrial arts teachers have families with two children than any other number; next in descending order, fifty-five teachers indicated that they had three children, and four teachers reported they had four children. It was interesting to note that the families of industrial arts teachers in this study are seemingly small and that no teacher indicated that he had more than four children.

In reply to a question asked of the industrial arts teachers concerning whether or not they would like to receive a summary of the results of this study, 179 reported
that they wanted such a summary, while eleven stated that they did not care to have one. This information indicates that, in the main, the industrial arts teachers in this study are interested in a study of this nature.

Summary

According to the findings disclosed by this study, the average teacher of industrial arts in the public schools of Texas in 1953 is married, has one child, is thirty-five years of age, has either a Master of Science or a Master of Education Degree, attended two different colleges, teaches four classes a day in a senior high school with eighteen students in each class, makes a salary of $3,598.00 per year, and teaches in a school that has a faculty of thirty-five teachers.

The average teacher, in addition to scheduled classes, has two extra-activities with which he is engaged, such as serving as a class sponsor, as a playground supervisor, as a home-room teacher, as a coach, as a teacher of adult classes, as an assistant in Boy Scout work, as a guidance counselor, as a swimming instructor, as an assistant at ball games, or as a school census enumerator. He has taught at two different schools, has had 8.6 years of teaching experience and three years of trade experience such as a carpenter, machinist, auto mechanic, welder, or draftsman.

He has received additional professional preparation since completing his last degree, in at least one of the
following phases: attendance at summer school, hight school, regular college courses, extension courses, and in-service training program. He has completed thirty-five semester hours in professional courses in education and forty-nine semester hours in industrial arts, of which thirteen semester hours were in the area of woodwork, nine semester hours in metal work, one semester hour in auto mechanics, two semester hours in electricity, four semester hours in general crafts, eleven semester hours in drawing, one semester hour in printing, two semester hours in design, and nine semester hours in methods.
CHAPTER V

COMPARISON OF CURRENT QUALIFICATIONS OF INDUSTRIAL ARTS TEACHERS WITH EXISTING QUALIFICATION REGULATIONS AS SET FORTH BY THE TEXAS EDUCATION AGENCY AND QUALIFICATIONS AS RECOMMENDED BY LEADERS IN THE FIELD OF EDUCATION

One of the stated purposes of this study was to treat data in order to determine the qualifications of the industrial arts teachers in Texas, and to compare these qualifications with the qualifications recommended by leaders in the field for industrial arts teachers and present certification regulations.

Comparison of Professional Preparation of Industrial Arts Teachers with Required and Recommended Qualifications

The Texas Education Agency prescribes certain general requirements for industrial arts teachers. As previously shown in Chapter II, one of the first general requirements is that an industrial arts teacher's qualifications should meet such requirements as are necessary to obtain a bachelor's degree from a standard four-year college or university. This qualification involves academic training "with
sufficient preparation in industrial arts education, including laboratory practice and theory in the activity he is to teach.¹ Data presented in Table 1 show that all of the 190 industrial arts teachers participating in the study except one held a bachelor's degree. Data in Table 2, show that the average teacher of industrial arts had completed an average of 53.8 semester hours in industrial arts education, and an average of 9.0 semester hours in courses pertaining to the methods of teaching industrial arts. Data presented in Table 5 show that a majority of industrial arts teachers had obtained their training in one or more of the various colleges in Texas. All of the schools attended are of recognized college rank, and are approved industrial arts teacher-preparation institutions.

The Laboratory of Industries plan recommended for the junior high school level includes four elective phases of industrial arts. This plan, if properly organized and taught, demands specific qualifications on the part of the industrial arts teacher. He must have adequate preparation in all of the various phases such as woodwork, drawing, metalwork, and electricity because the Texas Education Agency recommends at least three semester hours, or practical experience approved by an accredited teacher-training institution,¹

¹ Texas State Department of Education, op. cit., p. 124.
in each activity taught. Data in Table 2 show that the 190 industrial arts teachers included in the study had an average of 13.4 semester hours in woodwork, 10.6 semester hours in drawing, 9.4 semester hours in metal work, 1.8 semester hours in electricity, 1.6 semester hours in design, .9 semester hour in printing, and .8 semester hour in auto mechanics. According to these data, not all the present industrial arts teachers are qualified to teach in a Laboratory of Industries Plan which includes the phases of printing, auto mechanics, and electricity. Since electricity and auto mechanics play such an important part in the life of the average citizen, the lack of professional preparation in these phases on the part of the industrial arts teachers deserves mention. The majority of the teachers, the data indicate, have adequate professional preparation only for teaching woodwork, drawing, and metal work.

The foregoing requirements are the professional requirements for industrial arts teachers as prescribed by the Texas Education Agency. In addition to these requirements, the opinions and recommendations of authorities in the fields of education and industrial arts education were also investigated in order to ascertain their opinions and recommendations concerning the professional preparation for teachers. Douglass, in his recommendations for all secondary teachers, stated that "it is becoming evident that more than four
years of college or university study are needed for the complete preparation of teachers for secondary schools. At least one additional year of professional preparation is desirable, according to Douglass. Ericson emphasized the need for professional preparation, but would leave the specific requirements "in the hands of respective state departments of education."^3

Friese emphasized the need for professional preparation, but made no specific recommendations. Mays and Casberg place professional training at the top of their list of requirements for teachers of industrial arts; namely, academic training, technical training, and professional training. Reeder stressed the importance of teacher preparation which implies professional preparation. Schweickhard placed professional training high on the list of qualifications for industrial arts teachers, and asserted that training should include the fundamental courses in educational subjects planned and offered for all students, and in addition, professional studies in the special field of industrial arts

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2Douglass, op. cit., p. 86.
3Ericson, op. cit., p. 348. 4Friese, op. cit., p. 357.
5Mays and Casberg, op. cit., p. 160.
6Reeder, op. cit., p. 128.
education. Struck, an authority in the field of industrial arts, recommended professional training and preparation for teachers in this field.

Strickler made a study of the qualifications of industrial arts teachers in thirty-seven states and found that 31.25 per cent of the teachers held the bachelor's degree, 31.25 per cent had diplomas from institutions of higher learning, and 35.42 per cent had had one year or less of college work. Only 3.33 per cent held the master's degree, and less than 1 per cent held the degree of Doctor of Philosophy.

The foregoing recommendations were, in the main, the recommendations made by the authorities investigated in this study, other than the Texas Education Agency, in regard to the professional preparation of industrial arts teachers. When the qualifications of the 190 industrial arts teachers included in this study were compared with these recommendations, as shown in Table 1, 11\(\frac{1}{4}\) of the teachers had completed the master's degree, of which forty-seven were the Master of Science Degree, and forty-one were the Master of Education Degree, and twenty-three were the Master of Arts.

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7 Schweickhard, op. cit., p. 289.
8 Struck, op. cit., p. 60.
9 Strickler, op. cit., p. 70.
Degree. In addition to this preparation, the data in Table 4 show that the majority of the industrial arts teachers have done additional work since completing their latest degree. Seventy-five, or 39.4 per cent, had attended summer school; fifty-six, or 29.5 per cent, had participated in some type of in-service training program; thirty-three, or 17.4 per cent, had attended night school; twenty-one, or 11 per cent, had attended college during regular session; and eight, or 4.2 per cent, had taken one or more extension course. These data concerning the professional qualifications of the 190 industrial arts teachers reveal that these teachers, in the main, adequately meet the recommendations of the Texas Education Agency and of the authorities investigated in this study. The professional preparation of the teachers in this study surpass very decidedly the qualifications of the teachers surveyed by Strickler in his study which included industrial arts teachers in thirty-seven states.

Comparison of Teaching Experience of Industrial Arts Teachers with Required and Recommended Qualifications

The Texas Education Agency does not prescribe any specific requirements concerning teaching experience as a qualification for industrial arts teachers, but it does prescribe an amount of work in actual laboratory practice in several phases of industrial arts, such as woodwork, metalwork, general crafts, drawing, design, printing, and auto mechanics.
All of the industrial arts teachers who had graduated from teacher-education institutions had fulfilled the laboratory practice requirement. Data in Table 6 show the 190 industrial arts teachers have had a considerable amount of actual teaching experience. Only twenty-three of the teachers had less than two years of teaching experience, and fifty-one had more than ten years of teaching experience, and twenty-four of the teachers had over twenty years of teaching experience.

Teaching experience, as indicated by Douglass, does not always properly qualify teachers for effective teaching. The type of supervision under which the teacher has been working is closely related to the actual effectiveness of the experience. Ericson recognized that the mere fact that a teacher has been employed does not necessarily mean that he has been doing good work; on the contrary, he may have been "persisting in wrong practices, and inefficient and obsolete methods." Both Douglass and Ericson imply that teaching experience is desirable, provided this experience comes from properly qualified sources.

Mays and Casberg recommended that school administrators try to determine "some measure of the exact character of the teaching experience to be obtained." Schweickhard and Friese made no mention of teaching experience in discussing the

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qualifications of industrial arts teachers. Reeder based his discussion of the need of teaching experience on the actions of school boards in large school systems that require one or two years of teaching experience on the part of any teacher chosen to teach in the system. Selvidge and Fryklund emphasized the need for teaching experience in helping the teacher to gain skills. Struck, like Friese and Schweickhard, did not discuss teaching experience as a teacher-qualification.

The teaching experience of the 190 industrial arts teachers included in this study, when compared with the recommendations made by authorities previously quoted, appears to be more than adequate. Since the exact quality of the teaching experience is hard to measure, no specific conclusions can be drawn, but the continued service of the teachers in the field indicates that their work has been both successful and pleasing to the administrative heads of the schools who have employed them.

Comparison of Trade Experience of Industrial Arts Teachers with Required and Recommended Qualifications

Trade experience was one of the items considered in studying teacher qualifications. Since industrial arts

13Reeder, op. cit., p. 170.

14Selvidge and Fryklund, op. cit., p. 310.
teachers, in some instances, teach some phases of industrial arts in which they received no preparation in college courses it was necessary to acquire knowledge and practical experience by working in industry. "A wide knowledge of industrial life" is listed as one of the general qualifications for industrial arts teachers by the Texas Education Agency, and still another general qualification is that the industrial arts teacher have a "willingness to enter industry for a period of not less than six weeks every summer until he has gained practical experience in each type of activity he is teaching." This suggests that the teacher should work in various types of industry and actually gain practical experience in the skills he is teaching. No specific recommendations concerning trade experience, however, are set forth as a part of the requirements for teacher qualification by the Texas Education Agency.

Data presented in Table 7 show the trade experience of the 190 industrial arts teachers participating in the study. Fifty-two of them, the data show, had no trade experience of any kind. One hundred and three of the teachers have had some trade experience as carpenters, twenty-three as mechanics, twenty-one as draftsmen, nineteen as machinists, nine as welders, seven as sheet-metal workers. Five of the industrial

15 Texas State Department of Education, Industrial Arts Program in Junior and Senior High Schools of Texas, Bulletin 389, p. 124.
arts teachers reported they have had trade experience as painters, four as salesmen, two as leather-craft workers, two as printers, and one each as a blacksmith, concrete worker, and plumber.

The opinions and recommendations of the authorities previously presented in the study vary as to the amount of trade experience necessary for industrial arts teachers. Ericson, whose opinions were directed specifically toward industrial arts, placed trade experience or ability as a craftsman among the outstanding qualifications for a successful industrial arts teacher. Friese also expressed the opinion that trade experience was an essential part of the qualifications for industrial arts teachers. Mays and Casberg placed trade experience last in considering qualifications for industrial arts teachers. Schweickhard placed emphasis on the importance of trade experience, but placed this second to professional preparation, which he held to be necessary for educational values.

16 Ericson, op. cit., p. 348.

17 Friese, op. cit., p. 354.

18 Mays and Casberg, op. cit., p. 160.

Selvidge and Fryklund, like Schweickhard, placed value on trade experience, but ranked this experience second to professional preparation. The industrial arts teacher, they stated, not only needs to know his trade but the laws of learning as well.

Struck placed more emphasis on the value of trade experience as a qualification for an industrial arts teacher than any other of the authorities investigated. He stated that more attention was often paid by school boards to the trade experience qualifications presented by applicants than heretofore. Strickler found in his study that trade experience was considered an important element of industrial arts teachers' preparation. Thirty-eight per cent of the 480 teachers reported in his study had a year or more of trade experience.

The amount of trade experience of the 190 industrial arts teachers participating in this study, when compared with the recommendations of the authorities quoted, is somewhat less than any of the recommended qualifications, such as

20 Selvidge and Fryklund, op. cit., p. 160.
21 Struck, op. cit., p. 60.
22 Strickler, op. cit., p. 70.
professional preparation and teaching experience. The amount of trade experience reported was rather limited except in the area of woodwork.

Summary

This chapter presents a comparative study of the qualifications of the 190 industrial arts teachers participating in this study, with existing qualification regulations and qualifications as recommended by leaders in the field. It was found that the qualifications of the 190 industrial arts teachers in this study, concerning professional preparation, were above those qualifications required by the State and almost conformed to actual recommended requirements by authorities in the field.

In comparing the teaching experience of industrial arts teachers with recommended qualifications, the industrial arts teacher was found to possess more than enough experience to fulfill the requirements of the State and appeared to have more than adequately met the recommendations made by authorities in the field.

The trade experience of the 190 industrial arts teachers of this study does not compare favorably with the trade experience prescribed by the Texas Education Agency, except in the field of woodwork. Authorities in the field placed more value on trade experience than did the Texas Education Agency,
CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was threefold: (1) To review the literature concerning the qualifications recommended for industrial arts teachers based upon research studies and the opinions and recommendations of leaders in education and industrial arts education; (2) to gather data concerning the qualifications and general status of industrial arts teachers actually teaching in the State of Texas during the year 1952-1953; and (3) to analyze the data in order to determine the general qualifications and status of the industrial arts teachers in Texas when compared with present certification regulations and qualifications recommended by leaders in the field for industrial arts teachers.

The study was limited to data secured from 190 industrial arts teachers in accredited elementary, junior high, and senior high schools scattered over the State of Texas, and to the available current literature pertaining to the problem. Teachers of vocational education and industrial education were not included.
Four related studies were found: (1) A study by Jefferies of the status of 195 industrial arts teachers in Kansas; (2) a survey made by Strickler in 1927 concerning the qualifications of industrial arts teachers scattered widely over the United States; (3) a study by Ottinger of the industrial arts programs in Negro high schools in Texas; and (4) a study made by Matthews of the growth of industrial arts in the secondary schools of Texas from 1927 to 1948.

For information pertaining to the present certification regulations and recommended qualifications for industrial arts teachers in Texas, the Bulletin No. 389 recognized by the Texas Education Agency was utilized. The recommendations of eight recognized leaders in the field of secondary education and industrial arts education regarding qualifications of industrial arts teachers were studied. The recommended qualifications were divided into three general classifications, namely, professional preparation, teaching experience, and trade experience.

Data concerning the qualifications and status of industrial arts teachers in the schools of Texas were secured through the use of questionnaires. Of 380 questionnaires mailed to industrial arts teachers, 190 usable questionnaires were returned. The data in these questionnaires were treated

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1 Texas State Department of Education, _op. cit._, p. 124.
and the qualifications of the industrial arts teachers as indicated by the data were compared with Texas certification requirements and with recommendations by leaders in education and in industrial arts education. Other data and information concerning the general status of the 190 industrial arts teachers were secured and analyzed. The results of the study are briefly presented.

The average teacher of industrial arts, according to the findings disclosed by this study, is married, has one child, is thirty-five years of age, has a master’s degree, has attended two different colleges, teaches four classes a day in a senior high school with eighteen students in each class, and receives a salary of $3,598.00 per year.

This teacher, in addition to teaching scheduled classes, has two extra-curricular activities with which he is engaged, such as serving as a class sponsor, as a home-room teacher, or as a teacher of adult classes. He has taught at two different schools, has had 8.6 years of teaching experience and three years of trade experience.

He has received additional professional preparation since completing his last degree in one of the following ways: attending summer school, night school, regular college courses, extension courses, and in-service training programs. He has also completed thirty-five semester hours in professional education courses, and forty-nine semester hours in industrial arts.
Conclusions

Based upon the results of this study the following conclusions were drawn:

1. Minimum requirements for professional preparation of an industrial arts teacher under Texas certification regulations require a bachelor's degree with at least twenty-four hours in industrial arts, plus at least three semester hours in methods of teaching industrial arts, with said training to have been taken in an approved industrial arts teacher-training institution.

2. No specific trade experience is required for an industrial arts teacher to be certified in Texas, but a wide knowledge of industrial life and a willingness to enter industry for at least six weeks in the summer months are part of the general recommended phases of training and experience in the field of industrial arts.

3. Leaders in secondary education whose opinions and recommendations were studied recommended a high degree of professional preparation and experience over and above the four-year college course.

4. The quality of teaching experience is more important than the quantity as evidenced by the opinions of leaders in the field of industrial arts.

5. Trade experience was recommended as a desirable qualification for industrial arts teachers, but academic
and professional preparation are basic and fundamental to properly qualifying a teacher.

6. The general qualification of the teachers included in this study met very adequately the certification requirements and other recommendations concerning professional preparation and surpassed them in many instances.

7. The continuous employment of the majority of industrial arts teachers indicated that their work has been satisfactory from the standpoint of experience and professional preparation.

8. Some of the industrial arts teachers did not have trade experience and therefore did not meet the recommendations prescribed in Bulletin 389 and by leaders in the field.

9. The professional preparation of the industrial arts teachers in Texas is not well distributed in the various phases of industrial arts, such as electricity, printing, metal work, crafts, design, auto mechanics, and drawing, evidenced by the fact that the majority of the 190 industrial arts teachers had less than three semester hours' credit in each of the above phases.

10. The amount of professional training of the industrial arts teachers, included in this study, was greater than that of the teachers included in Strickler's survey which included teachers from thirty-seven states.
11. The largest proportion of the industrial arts teachers in this study teach five classes of industrial arts each day.

12. General mathematics is the subject, other than industrial arts, most frequently taught by industrial arts teachers.

13. A large majority of the industrial arts teachers of the study have a pupil load ranging from eight to eighty-nine students per day.

14. A majority of the industrial arts teachers included in the study, teach industrial arts at the high school level; only 14.7 per cent teach at the junior high level.

15. The average industrial arts teacher takes an active part in school activities by serving as club sponsors and home-room teachers.

16. The greatest proportion of the 190 industrial arts teachers are teaching in school systems that employ between twenty and thirty teachers.

17. The ages of industrial arts teachers of the study range from twenty to sixty-five years; the average age was 35.4 years.

18. Eleven of the 190 industrial arts teachers were unmarried; the average industrial arts teacher has one child.
19. The average salary of the 190 industrial arts teachers was $3,598.00 per year.

Recommendations

Recommendations are offered in terms of indicated needs based upon an analysis of the data collected and analyzed in this study. These recommendations are as follows:

1. A survey should be made by industrial arts teachers in each school to determine whether the industrial arts program and the qualifications of the teachers are meeting the needs of the community and of the pupils.

2. Teacher-education institutions should utilize results of research to determine whether or not they are providing teacher-education programs for industrial arts teachers that will prepare them to meet the needs of the communities and the pupils.

3. An effort should be made to provide more adequate preparation in all of the various phases of industrial arts.
Fig. 1.--Spot map of Texas showing the location of the 190 teachers in elementary, junior-high, and senior high schools included in this study.
March 14, 1953

I am making an analysis of the preparation, qualifications, and status of the industrial arts teachers in the public schools of Texas. In order to complete the analysis there are certain data and information needed that only you can make available.

It is admitted that the enclosed questionnaire may appear to be rather long and complicated. An attempt has been made, however, to simplify it so as to require a minimum amount of your time to complete it.

If you will complete the enclosed questionnaire and return it to me at your earliest convenience, it will be greatly appreciated by me and others. The data and information you supply will be treated in a very confidential manner. Names of individuals and schools will be used only for statistical purposes and will not appear in the report.

Yours sincerely,

Jack P. Dial

JPD:mgd
Encl.
AN ANALYSIS OF THE QUALIFICATIONS AND STATUS OF INDUSTRIAL ARTS TEACHERS IN THE STATE OF TEXAS

The purpose of this questionnaire is to gather data and information in order to study and analyze the qualifications and status of the industrial arts teachers in the State of Texas. It is believed that the study will be of value in planning future teacher preparation programs and will be of particular value and interest to industrial arts teachers themselves as a means of comparing their qualifications, preparation, and general status with the preparation, qualifications, and general status of the teachers in other subject matter areas.

I wish to assure you that names of individuals and schools will be kept strictly confidential, and all data submitted by you will be used for statistical purposes only.

Yours very sincerely,

Jack P. Dial

* * * * * * * * * * * * * * * * * * * * * *

Your name

Address

Name of school

1. How many classes in industrial arts do you teach each day? _____classes.

2. What is the total number of students enrolled in all of the industrial arts classes you teach each day? _____students.

3. Do you teach any other classes other than industrial arts? _____yes _____no

4. If you teach any other classes other than industrial arts, please list them. _____________________________________
5. Indicate by checking the age level or levels you teach.

Elementary____Junior high____Senior high.

6. Please list the colleges and/or universities you have attended in the space provided below.

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<th>Name of College</th>
<th>Date or dates attended</th>
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7. Indicate by checking the academic degree or degrees you have earned and please give the year in which you earned it.

___B.A. degree ___B.S. degree
___M.A. degree ___M.S. degree
___M.Ed. degree ___Ed.D. degree
___Ph.D. degree

8. How many hours have you completed in industrial arts or industrial education in terms of ___semester hours, ___quarter hours, or ___term hours?

9. How many hours have you completed in each of the following phases of industrial arts or industrial education?

___Woodwork ___Metal work ___Auto mechanics
___Electricity ___General crafts ___Drawing
___Printing ___Design ___Methods of teaching

10. How many hours have you completed in education courses in terms of ___semester hours, ___quarter hours, or ___term hours?

11. In your opinion, do you believe that your preparation was adequate for the actual teaching of industrial arts? ___yes___no
12. If you do not believe that your preparation was adequate in some of the phases of industrial arts, indicate by checking.

_____ Woodwork  _____ Metal work  _____ Auto mechanics
_____ Electricity  _____ General crafts  _____ Drawing
_____ Printing  _____ Design

_____ Methods of teaching

13. If you have done additional work to better prepare yourself for teaching since completing your last degree, indicate by checking the following ways you have used.

_____ Summer school  _____ Night school  _____ Regular college
_____ Extension courses  _____ Attended and participated in in-service training programs.

14. Please list any trade experience that you have had and the length of time you followed the trade.

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<th>Kind of work</th>
<th>No. of yrs.</th>
<th>No. of months</th>
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15. Please list in the space provided below the different places you have taught, subjects taught, and the amount of the salary you received.

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<th>School</th>
<th>Subject taught</th>
<th>No. of yrs.</th>
<th>Beginning salary</th>
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16. Please check the following activities that you sponsor or work with in addition to your regularly scheduled classes.

School class sponsor, Club sponsor,
Playground supervision, Home room,
Coaching, Adult classes, Boy scouts.

If there are other activities you sponsor or work with that are not included in the above list, please list them.

17. How many teachers are employed in the elementary, junior, or senior high school in which you teach?

18. How many other industrial arts teachers are there teaching in the elementary, junior, or senior high school in which you teach?

19. Do you wish a summary of this study when it is completed?

   _____yes _____no

20. What is your present age? _____years.

21. Are you married? _____yes _____no

22. If you are married and have children, please give the number of children you have.
BIBLIOGRAPHY

Books


Articles


Bulletins

Texas State Department of Education, Industrial Arts Programs, Bulletin Number 389, Austin, Texas, Texas State Department of Education, 1938.


Unpublished Material


